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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/565,324
Filing Date: January 20, 2006
Appellant(s): UEDA ET AL.

Y. Rocky Tsao
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed **3/12/2010** appealing from the Office action mailed **7/14/2009**.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Copending application Serial No. 10/570,965, over which the instant application was rejected on the ground of nonstatutory obviousness type double patenting.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-28 are pending. Claims 1-28 are rejected on multiple grounds.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office

action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 6,284,362	Takai et al.	9-2001
EP 0 282 287	Yamada et al.	9-88
US 2003/0018114	Tai et al.	1-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 6-10, 22-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1-4, 6, 21-22, 24, 26, 27-29** of copending **Application No. 10/555,707** (Published as **US 2006/0276598**). Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach similar highly absorbent resin compositions and uses thereof.

With regard to Claim 1, 8, and 10, the copending application claims a process for production of a water absorbent resin (claim 1) or a water absorbent resin having a water absorption capacity of not less than 40 g/g without load (claim 3, 10), a total

absorption capacity not less than 78 g/g (claim 28), and not less than 70 g/g *under load* (claim 4), which includes an inorganic powder (claim 26) or a deodorant (claim 27). The specification of the copending application teaches that favorable deodorants include "composite hydrous oxides of zinc-silicon or zinc-aluminum, which are cited in Japanese patent Application 280373/2003," (see p. 32, line 10) to which the instant application claims priority. Note MPEP 804: "Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in the application defines an obvious variation of an invention claimed in the patent. In re Vogel, 422 F.2d 438, 441-42, 164 USPQ 619, 622 (CCPA 1970)." With regard to the content of zinc-silicon or zinc-aluminum, when faced with a mixture, one of ordinary skill in the art would be motivated by common sense to select a 1:1 ratio, a ratio that falls within the presently claimed amount, absent evidence of unexpected or surprising results. Case law holds that "[h]aving established that this knowledge was in the art, the examiner could then properly rely... on a conclusion of obviousness, 'from common knowledge and common sense of the person of ordinary skill in the art within any specific hint or suggestion in a particular reference.'" *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

With regard to Claim 6 and 7, the copending application teaches that a suitable deodorant includes extracts from leaves of Theaceae plants (see p. 32 line 8), and additives including hydrophilic short fibers are also be included (see p. 31 line 15), and in certain uses, a fibrous material is favorable (see p. 34 line 5-6, p. 50 line 5).

With regard to Claims 9 and 22, the copending application teaches that a back sheet made of liquid impermeable material, and a surface (top) sheet made of liquid permeable material can be put on the two sides of a molded portion of this water absorbent resin. (see p. 42, Example 3)

With regard to Claims 23 and 25, the copending application claims the resin has a temperature of 40 to 80°C when the surface crosslink-treating agent is added (claim 2) and teaches the crosslinking treatment is carried out by heating after the agent has been added, specifically in a range of 60 to 260°C, particularly preferably from 120°C to 200°C. (see p. 22 line 21-30)

With regard to Claims 24 and 26, the copending application claims the surface-crosslinking agent includes a polyhydric alcohol. (claim 22)

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 4, 6-10, 22-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1-6, 10, 12, 14, 18-25** of copending **Application No. 10/570,965** (Published as **US 2007/0066167**). Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach similar highly absorbent resin compositions and uses thereof.

With regard to Claim 1, 8, and 10, the copending application claims a particulate water absorbent resin (claim 1, 2, 3) or a method for making a water

absorbent resin (claim 20, 21, 22) having a water absorption capacity of not lower than 21 g/g against a pressure of 4.8 kPa, (claim 3, 18), or not lower than 20 g/g against a pressure of 1.9 kPa (claim 6) which includes a polyvalent metal salt, an inorganic fine particle, and a deodorant (claim 10). The inorganic fine particle can be a composite hydrated oxide (claim 14) The specification teaches that a composite hydrated oxide containing zinc and silicon or zinc and aluminum can be added. (see p. 38 line 7-13) It would be obvious, in the absence of any direct teaching, to employ either of these hydrated oxides with a ratio of 50/50, which falls within the claimed range of the instant application.

With regard to Claim 4, the copending application claims the median particle size of the water absorbing agent in the range 200 to 400 μm, (claim 1-3, 20-22), 90 – 100% by weight of the particulate has a diameter in the range 150μm to 600 μm (claim 5), and a step or removing coarse particles having diameters above 400μm is claimed (claim 23-25).

With regard to Claim 6 and 7, the copending application claims a deodorant which is a component made from a plant (claim 12), and an absorbing article which is molded by comprising a particulate water absorbing agent and hydrophilic fibers (claim 19).

With regard to Claims 9 and 22, the copending application teaches that an absorbing article prepared by sandwiching the absorbing core between a substrate with liquid permeability (surface sheet) and a substrate with liquid non-permeability (back sheet). (see p. 49, line 25-28)

With regard to Claims 23 and 25, the copending application teaches that the heating temperature after addition of the surface crosslinking agent is in the range of 100 to 250°C. (see p. 30 line 30-33)

With regard to Claims 24 and 26, the copending application teaches a surface-crosslinking agent can be polyhydric alcohol. (see p. 29 line 3-9)

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 4, 6-10, 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1-5, 9-10** of copending **Application No. 11/662,590** (Published as **US 2008/0075937**). Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach similar highly absorbent resin compositions and uses thereof.

With regard to Claim 1, 8, and 10, the copending application claims a particulate water absorbent resin (claim 1, 2) or a method for making a water absorbent resin (claim 10) having a water an absorbency under a pressure of 4.8 kPa of not less than 20 g/g (claim 1,2). The water absorbing agent further contains a multivalent metallic salt, an inorganic fine particle, and a deodorant (claim 4). The specification of the copending application teaches a composite hydrous oxide as a deodorant which contains a "composite hydrous oxides of zinc-silicon or zinc-aluminum, (see Japanese Unexamined patent Application Tokugan 2003-280373" (see p. 55, line 20-25) to which

the instant application claims priority. It would be obvious, in the absence of any direct teaching, to employ either of these hydrated oxides with a ratio of 50/50, which falls within the claimed range of the instant application.

With regard to Claim 4, the copending application claims the mass average particle diameter of the water absorbing agent in the range 200 to 450 μm, with 0-5% mass being smaller than150μm. (claim 1-2,10)

With regard to Claim 6 and 7, the copending application teaches a plant extract (see p. 54 line 1-11), and claims hydrophilic fibers as a part of the structure formed from the particulate water absorbing agent (claim 9).

With regard to Claims 9 and 22, the copending application teaches that an absorbing article prepared by sandwiching the absorbing core between a substrate with liquid permeability (surface sheet) and a substrate with liquid non-permeability (back sheet). (see p. 74, line 11-14)

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Examiner Note: Application Serial No. 11/662,590 had been passed to issue, and published as Patent No. 7,510,988, thus the grounds are no longer provisional.

Claims 1, 4, 6-10, 22-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1, 6, 11-15,** of **U.S. Patent No. 7473470**. Although the conflicting claims are not identical, they are not patentably

distinct from each other because both applications teach similar highly absorbent resin compositions and uses thereof.

With regard to Claim 1, 8, and 10, the copending application claims a particulate water absorbent resin (claim 1) or a method for making a water absorbent resin (claim 15) having a centrifuge retention capacity not lower than 32 g/g, and absorbency against pressure of 1.9 kPa of not lower than 20 g/g (claim 6) which includes a polyvalent metal salt, an inorganic fine particle, and a deodorant (claim 11). The specification teaches that a composite hydrated oxide containing zinc and silicon or zinc and aluminum can be added. (see p. 39 line 19-25) It would be obvious, in the absence of any direct teaching, to employ either of these hydrated oxides with a ratio of 50/50, which falls within the claimed range of the instant application.

With regard to Claim 4, the copending application claims the mass median particle size of the water absorbing agent in the range 200 to 400 μm, and particles of the agent smaller than 600 μm and not smaller than 150 μm are in the range of 95 – 100% by weight (claim 1, 15).

With regard to Claim 6 and 7, the copending application describes a deodorant which is a component made from a plant (see p. 37 line 12-33), and claims an absorbing article which is molded by comprising a particulate water absorbing agent and hydrophillic fibers (claim 12, 14).

With regard to Claims 9 and 22, the copending application teaches that an absorbing article prepared by sandwiching the absorbing core between a substrate with

liquid permeability (surface sheet) and a substrate with liquid non-permeability (back sheet). (see p. 50, line 1-5)

With regard to Claims 23 and 25, the copending application teaches that the heating temperature after addition of the surface crosslinking agent is in the range of 100°C to 250°C. (see p. 28 line 1-7)

With regard to Claims 24 and 26, the copending application teaches a surface-crosslinking agent can be polyhydric alcohol. (see p. 26 line 5-11)

Claims 27 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The applicant has directed attention to the ruling of *In re Wertheim*, 541 F.2d 257, 191 USPQ (CCPA 1976) in support of an example supporting a claim limitation having an endpoint between two endpoints taught in the specification. (See Remarks, p. 8, footnote) Attention is directed again to *In re Wertheim*, which states: "The inquiry into whether the description requirement is met must be determined on a case-by-case basis and is a question of fact." (See MPEP 2163.04) Therefore on the basis of case law and the MPEP, it is necessary to study the fact pattern in the instant case to determine whether support for the claims is present in the specification.

With regard to the preponderance of evidence required under this subsection of the MPEP, in this case, applicant has given a range of 50/50 - 99/1 (p. 6 line 5) and provided examples at 82/18. (p. 66 lines 15-29) The examples use 0.5 weight parts (and in only one case 0.1 weight parts) of the metal hydroxide complex, and the metal hydroxide complex has a diameter of 0.36 μm. Furthermore, there is only one metal hydroxide complex employed, which is a zinc and silicon oxide hydrate. The claims as currently filed do not restrict the content or particle size of the metal oxide in any way, nor do they limit the metal hydroxide complex to one consistent with the examples, but rather to a complex containing zinc and a second metal selected from a small Markush group (silicon or aluminum). The claims, as currently recited, read on a broad variety of embodiments which are not consistent with the examples, taken as a whole. Based on the discrepancy between the exemplified compositions, and the embodiments which are consistent with the new claims, this recitation constitutes new matter, and is therefore rejected.

Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Takai et al. (US 6,284,362)** in view of **Yamada et al. (EP 0 282 287).**

With regard to Claim 1 and 10, Takai teaches an absorbent composition having a microfiller and a hydrogel having a water absorptive resin, (see abstract) prepared by mixing a microfiller with a water absorptive resin in a hydrogel. (see col 3 line 45-50) The water absorbent resin has a crosslinked structure and an absorption amount for physiological saline under applied pressure of 20 g/cm^2 that is 25 g/g or more. (see col

4 line 63-65) Twenty grams per centimeter squared is equal to 1.96 kPa. The resin is obtained by polymerizing a radical polymerizable monomer such as unsaturated mono or polycarboxylic acids. (see col 7 line 1-7, 26-44) The microfiller is be an inorganic filler, or one or a mixture of at least two selected from a group including silicon and aluminum oxides. (see col 4 line 40-45) Furthermore, Takai teaches that deodorants, zeolite, and so forth are be added to the mixture during or after the drying step. (see col 15 line 10-13) Takai does not explicitly teach the details for a mixture of these oxides or the use of zinc in combination with these metal oxides.

Yamada teaches a deodorizer which is a complex metal oxide hydrate of the composition SiO_2 (5-80 mole%), $MO_{n/2}$ (5-65 mole%), Al_2O_3 (0-60 mole%), where M can be zinc, in combination with a polymer absorbent powder as a liquid absorbent. (see p. 3 line 20-35). Because the molecular weight of zinc oxide (81.4 g/mol) is more than that of silicon dioxide (60.1 g/mol), the contribution of zinc oxide will be more significant when the percentages are reported in weight percent, rather than mol percent. For simplicity, taking the case where Al_2O_3 is zero percent (absent), ZnO would be from 20 to 60 mol% and SiO_2 would be from 40 to 80 mol%. In weight percent, this ratio is 25-67% zinc oxide and 33% to 75% silicon dioxide. This includes mass ratio from 25/75 to 67/33, which overlaps with applicant's claimed range. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See In re Harris, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); In re Peterson, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382

(Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)

It would be obvious, given that the microfiller of Takai is an inorganic filler, or a metal oxide, to use the metal oxide of Yamada. Takai indicates that deodorants or zeolites are be used to further enhance the resin composition. Employing the metal oxide of Yamada's invention would provide this inorganic filler or metal oxide while also achieving Takai's aim of deodorizing the resin. Furthermore Yamada describes explicitly that the complex oxide hydrate of the invention can be ***mixed*** together with a polymer absorbent in any form. (see p. 5 line 12-13) In other words, Yamada explicitly indicates that the complex metal oxide hydrate is for use within a resin composition.

With regard to Claim 2, Yamada teaches that the complex metal hydrate of zinc and aluminum and/or silicon is obtained by reacting water soluble metals in the desired ratio in the presence of water, followed by a step where the resulting precipitates are heated in the presence of water. Further, the simultaneous addition of the reactants allows the formation of precipitated metal salts (or complexes) having a composition corresponding to the concentration of the aqueous solution. (page 4 line 11-21, 33-37).

With regard to Claim 3 and 11, Takai teaches resins which have a similar chemical makeup to those of applicant, specifically, primarily composed of acrylic acid polymerized to yield a gel. (see Example 1, applicant's Referential Example 1) Applicant appears to dry blend the resin and the complex oxide hydrate (see applicant's Example 1) The method advanced by Yamada is to mix the polymer and the resin. (see p. 5 line 12-13) Takai, on the other hand, incorporates the microfiller and any other

fillers prior to the drying step (while the resin gel is in a swollen state), and subsequently dries the resin so that the absorptive resin particles contain a built in micro-filler. (See col 3 line 45-50, col 15 line 10-13) Takai also teaches that the method further includes surface crosslinking the mixture after drying (col 5 line 30-31) Contrary to a method that merely contacts the dry resin and the complex oxide hydrate, the method of Takai insures that the fillers are contacted to the resin in its swollen state (built in), and surface crosslinking would provide a further security to prevent separation when the gel is in a swollen state. Based on the similarity in the chemical composition of the resin composition of Takai in view of Yamada to that presented by applicant, and the additional steps taught by Takai to insure that any fillers or microfillers would be "built in," it is the examiner's position that a separation ratio consistent with applicants, or less, would be observed from this combination.

With regard to Claim 4, 12, 13, and 14, Takai teaches that the absorbent composition has a particle size from 200μm to 700μm and preferably 250μm to 600μm, and the particle size distribution greater than 100μm and less than 1000μm is 90%, or preferably 95% by mass or more. (see col 16 line 23-26) This presents a particle size distribution that is substantially similar to that required by applicant. Specifically, if the composition has a preferable particle size above 250μm but less than 600μm, then a typical Gaussian distribution would have the bulk of the particles exceeding 300μm in diameter. Takai also teaches that particles larger than 700μm will have a lower absorption speed, (see col 16 line 27-30) which would motivate one of ordinary skill in the art to bring the particle size below that size. Furthermore, the dictate that particles

outside the range 100μm-1000μm are less than 95% by mass or more, in combination with the instruction that particles of 200μm or more are easier to handle (see col 16 line 30-37), would motivate one of ordinary skill in the art to avoid particles less than 150μm. One of ordinary skill in the art, given the instructions of Takai with regard to particle size, would arrive at a particle size consistent with that claimed by applicant.

With regard to Claim 5 and 15-21, Yamada teaches a mass ratio from 25/75 to 67/33, which overlaps with applicant's claimed range. (See discussion above, with regard to **Claim 1**)

With regard to Claim 6 - 8, Takai teaches that when the invention is used as an absorbent product, the absorption layer includes the absorbent composition and a fibrous material. (see col 20 line 14-15) Materials such as pulp, synthetic fibers, and natural fibers are enumerated. (see col 20 line 28-33) Pulp is consistent with applicant's "ground wood pulp" (see p. 40 line 25). This is a cellulosic product, and is hydrophilic. This is supported by applicant's inclusion of pulp as a hydrophilic fiber. Furthermore, pulp (deriving from trees or other cellulosic plants) as well as "natural fibers" which include such materials as cotton, are plant components. With regard, specifically, to claim 8, see the discussion with regard to Claim 1, above, for the remainder of the components and limitations.

With regard to Claim 9 and 22, Takai teaches a non-water permeable sheet which is located outside and a water permeable sheet which is located inside (product relative to the body, here "outside" would be consistent with the bottom sheet, and

"inside" would be consistent with the top sheet), with a absorption layer located between the two sheets. (see col 20 line 19-22)

With regard to Claims 23 and 25, Takai exemplifies a thermal crosslinking process (surface crosslinked) of 140°C. (See example 2, 8)

With regard to Claims 24 and 26, Takai teaches examples of crosslinking agents used at surface crosslinking process including polyol compounds, such as glycerol, ethyleneglycol, polyethyleneglycol). This is consistent with applicant's "polyhydric alcohol," which includes polyethylene glycols and glycerin (see applicant's p. 15 line 4-8)

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Takai et al. (US 6,284,362)** in view of **Tai et al. (US 2003/0018114).**

With regard to Claims 27-28, Takai teaches an absorbent composition having a microfiller and a hydrogel having a water absorptive resin, (see abstract) prepared by mixing a microfiller with a water absorptive resin in a hydrogel. (See col 3 line 45-50) The water absorbent resin has a crosslinked structure and an absorption amount for physiological saline under applied pressure of 20 g/cm^2 that is 25 g/g or more. (See col 4 line 63-65) Twenty grams per centimeter squared is equal to 1.96 kPa. The resin is obtained by polymerizing a radical polymerizable monomer such as unsaturated mono or polycarboxylic acids. (See col 7 line 1-7, 26-44) The microfiller is an inorganic filler, or one or a mixture of at least two selected from a group including silicon and aluminum oxides. (See col 4 line 40-45) Furthermore, Takai teaches that deodorants, zeolite, and

so forth are added to the mixture during or after the drying step. (see col 15 line 10-13) Takai does not explicitly teach the details for a mixture of these oxides or the use of zinc in combination with these metal oxides.

Tai teaches a deodorizer to reduce odor caused by low molecular weight by-products produced by the degradation of food (see par [0004]) which is preferably zinc, aluminum, and silicon compounds, compositions containing a zinc compound and a silicon compound, or compositions containing a zinc compound and an aluminum compound. (see par [0177]) The double salts containing a zinc compound and a silicon compound are preferably used, and have zinc oxide and silicon dioxide in a weight ratio of 1:5 to 5:1, which is 80:16. (See par [0182]) Although this value is not exactly 82:18, it is the examiner's position that the values are close enough that one of ordinary skill in the art would have expected the same properties. Case law holds that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). A composition of a zinc compound and an aluminum compound having 100 parts by weight of the zinc compound to as little as 1 part by weight of the aluminum compound is also preferably used. (See par [0183]) This falls within applicant's claimed range. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir

2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)

It would be obvious, given that the microfiller of Takai is a metal oxide, to use the metal oxide of Tai. Additionally, Takai indicates that deodorants or zeolites are used to further enhance the resin composition. Employing the deodorant of Tai's invention, which is useful in odors generated from the degradation of food, which is expected in the waste which Takai's resin is expected to encounter, would provide this inorganic filler or metal oxide while also achieving Takai's aim of deodorizing the resin.

(10) Response to Argument

Appellants have not addressed the obviousness type double patenting rejections in the Appeal Brief, but requested that these rejections be addressed upon removal of the prior art rejections in the remarks filed 3/31/2009, p. 11, par 1. Thus, it is noted that the obviousness-type double patenting rejection of record are being maintained until properly overcome.

Appellant argues **(I)** that the Zn-Si/Al oxide complex is described in the specification as being 0.001-5 parts by weight, relative to 100 parts of the resin, and having a diameter of 0.001 to 1000 microns. Examples were provided where the Zn-Si/Al oxide complex used had a relative weight of 0.1 or 0.5 and a diameter of 0.36 microns. One of ordinary skill in the art would recognize, in view of the examples, that

complexes with another relative weight and another diameter can also be used. In other words, these examples fully support the claims, even though they are not particularly limited to the relative weight and diameter of the Zn-Si/Al oxide complex. Attention is also drawn to *in re* Wertheim, where a specific example embodied only one instance of each of the parameters, but the court ruled that the new limitations were supported. Like Wertheim, the instant specification describes a broad range of 50/50-99/1 which embraces the narrower range recited in Claims 27 and 28. Thus, the instant specification provides sufficient written description for the 82/18-99/1 range recited.

The examiner first notes what appears to be a typographical error on page 4, paragraph 2 of Appellant's Appeal Brief: Appellant writes "the instant specification [...] embraces the narrower range "82/18-99/1" recited in claims 27 and 28, and includes specific examples of "**82/19**" which is equal to the lower limit of the narrower range." This should read "specific examples of "82/18" which is equal to the lower range." as this is the lower range used by the specification (see p. 68 par [0142]), and recited as the lower range in the instant claims. (See Claims appendix)

With respect to the rejection for lack of written description for the range "82/18-99/1" recited in Claims 27 and 28, the instant claims require a content of zinc and the content of silicon or aluminum is in the range of 82/18-99/1. The examples in the specification employ 0.5 mass parts of a complex oxide hydrate of zinc and silicon having a mass ratio of 82/18 and average particle diameter of 0.36 microns. (See p. 68, par [0142]). The complex oxide hydrate recited in the claims is zinc and one of either silicon or aluminum, whereas the examples show a specific oxide hydrate of zinc and

silicon. An example having any of the end points or internal range of 82/18-99/1 is not given in the examples. As appellant correctly notes, the specification recites a broad range of 50/50-99/1 of a complex oxide hydrate of either Zinc and Silicon or Zinc and Aluminum. There is no example that shows this Zinc and Aluminum and a preferred ratio for its use.

Furthermore, the examples use 0.5 weight parts (and in only one case 0.1 weight parts) of the metal hydroxide complex, and the metal hydroxide complex has a diameter of 0.36 μm. Compared to the broad range 0.001 to 5 parts by weight, and the broad diameter requirements, from 0.001 to 1000 microns, the example is a very narrow content and particle size. The claims as currently filed do not restrict the content or particle size of the metal oxide in any way, nor do they limit the metal hydroxide complex to one consistent with the examples, but rather to a complex containing zinc and a second metal selected from a small Markush group (silicon or aluminum). The claims, as currently recited, read on a broad variety of embodiments which are not limited to the narrow species, size, and content specifically used in the examples, taken as a whole. Based on the discrepancy between the exemplified compositions, and the embodiments which are consistent with the new claims, the examiner maintains that the amended claims constitute new matter.

Appellant argues (II) that neither Takai nor Yamada teach or suggest the features required by Claim 1, namely the combination of (1) a Zn-Si/Al complex and (2) an absorption capacity not less than 20 g/g.

With respect to the rejection of Claims 1-26, which are rejected over Takai and Yamada, as appellant notes, Takai teaches a water absorbent composition containing a hydrogel resin capable of absorbing more than 25 g/g of physiological salt and an inorganic metal oxide microfiller. Furthermore, Takai teaches that The microfiller is an inorganic filler, or one or a mixture of at least two selected from a group including silicon and aluminum oxides. (see col 4 line 40-45) Furthermore, Takai teaches that deodorants, zeolite, and so forth are be added to the mixture during or after the drying step. (see col 15 line 10-13) Yamada teaches a metal oxide filler which functions as a deodorant for use with a polymer absorbent resin. The metal oxide deodorant is composted of SiO_2, ZnO, and optionally Al_2O_3.

It would be obvious, given that the microfiller of Takai is an inorganic filler, specifically a metal oxide, and that Takai teaches the use of a deodorant to further enhance the functionality of the resin composition, to use the metal oxide of Yamada. Employing the metal oxide of Yamada's invention would provide this inorganic filler or metal oxide while also achieving Takai's aim of deodorizing the resin. Furthermore Yamada describes explicitly that the complex oxide hydrate of the invention can be mixed together with a polymer absorbent in any form. (see p. 5 line 12-13) In other words, Yamada explicitly indicates that the complex metal oxide hydrate is for use

within a resin composition. Thus, there is explicit and clear motivation to take the teachings of Takai in combination with the teachings of Yamada to arrive at the claimed invention.

Appellant argues (III) that Takai does not teach or suggest using a Zn-Si/Al oxide complex, let alone the unique ratio required by Claims 27 and 28. Tai discloses a deodorizer that can be used in a resin composition containing a Zn compound and a Si/Al compound. Appellant notes that applicants can rebut a presumption of obviousness based on a claimed invention that falls within a prior art range by showing that the prior art teaches away from the claimed invention **or** that there are new and unexpected results relative to the prior art.

Appellant points out that Tai teaches away from the range of 82/18-99/1 because Tai teaches a broad range of 1:5 to 5:1 (4.55:1 – 99/1), which slightly overlaps with the range, but then further teaches a preferable range from 1:4 to 4:1 (20/80-80/20), and more preferably 1:3 to 3:1 (25/75-75-25). Thus the prima facie case of obviousness is rebutted.

Appellant further points out that the specification describes 11 compositions, denoted as examples 1-11. The compositions contain Zn oxide, and Si/Al oxide at the ratio of 82/18 or 91/10. In other words, ranges covered by Claim 27 and 28. All of these compositions had excellent deodorizing effect after 30 minutes of absorption, with 6 ppm of hydrogen sulfide remaining. By contrast, the compositions denoted as comparative examples 5 and 6 contained Zn oxide and Si oxide at a ratio of 40/60,

which is not covered by the instant claims, but correspond to the Tai compositions. These exhibited significantly lower deodorizing effect, specifically 10.5 ppm and 8 ppm of hydrogen sulfide remaining.

With regard to appellants argument that Tai teaches away from the range 82/18-99/1 because a preferable range not including this range is recited, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a zinc oxide and silicon dioxide in the range 1:5-5:1 (17:83-83:17) given that Tai teaches this range. (See par [0182])

Furthermore, it is noted that Tai teaches a composition of a zinc compound and an aluminum compound which is preferably used having a ratio of 1 to 1000 parts by weight of the aluminum compound to 100 parts by weight of the zinc compound. (See par [0183]) This corresponds to a range of approximately 99:1 to 1:99, which likewise encompasses appellant's claimed range.

With regard to appellant's allegation of unexpected results, it is the examiner's position that the results demonstrated in the specification do not provide the necessary objective evidence to overcome the strong case of *prima facie* obviousness for combining Takai and Tai, and for using a metal oxide complex falling within the ranges taught by Tai for both zinc/silicon and for zinc/aluminum. First, appellant's data, shown in the specification, is for a complex oxide hydrate of zinc and silicon having a mass

ratio of 82/18. The instant claims require a metal oxide complex which is **either** zinc and silicon **or** zinc and aluminum. Tai teaches complexes which are both zinc and silicon **and** zinc and aluminum. Even, *arguendo*, the data provided in the specification did provide support for unexpected results, which the examiner does not concede, results are only provided for one of the members of the claimed Markush group (specifically, zinc and silicon, see p. 68, par [0142]) and not for both members of the Markush group. Tai provides a teaching for both. Therefore even if this data did show unexpected results, it would only do so for one species claimed, and one species taught by Tai, which leaves a teaching of the remaining species (zinc and aluminum) which is not overcome because there is no data associated with this species. Therefore, the results are not commensurate in scope with the scope of the claimed invention.

With regard to the results shown in the specification, Table 2 (p. 76-77) shows remaining hydrogen sulfide after 30 minutes of 2-6 ppm in the inventive examples, which have a zinc/silicon ratio of 82/18, and 7.5 to 15.5 in the comparative examples, which have a ratio of 40/60. It is not clear that there is a statistically relevant difference between a remaining level of 6 and a remaining level of 7.5. Appellant has not shown any statistical data or given a background for determining the level of difference which provides a statistical and/or a detectable difference by the end user. Furthermore, Tai teaches a range of 17:83 -83:17, more preferably 20:80 – 80:20, and most preferably 25:75 to 75:25. Therefore the 40/60 demonstrated by applicant, while encompassed by Tai's teaching, is not consistent with the upper bound of Tai's most preferred range, which falls at 75:25. It is the examiner's position that a complex at this ratio would be

expected to have absorbance even closer to that achieved with the 82/18 complex used in the inventive examples. Thus, appellants have not met the burden of establishing that the results are unexpected comparative to the range most preferably taught by Tai.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Examiner, Art Unit 1796

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